FY 98 Progress Report on the Real Time Tsunami Detector System

October 7, 1998

MOANA WAVE in Hawaii - Deep water test of the new Telesonar modems, which are the next generation of Datasonics modems used in 1997. Tests disclosed some problems with the basic telemetry scheme, but some features showed promise.

SHANA RAE in Monterey Bay - Replay of the Hawaii test, but in only 1200 meters of water, with modified software in the modems. Greatly improved communications and test of various coding schemes, baud rates, and acoustic source levels helped define operating parameters for the next deployments.

WECOMA from Kodiak, Alaska, to Newport, Oregon - Deployed 2 moorings in the North Pacific with mixed results. One suffered a GOES transmitter failure after only 3 days and the other lost communication with the bottom after less than a week - cause unknown. However, on the few days these systems worked, it was clear that the modems on the buoys did not always "wake up" when data was sent from the bottom, although other times the data was error free. These findings were passed to the manufacturer and modifications to the firmware were made, tested in Buzzards, Bay, Massachusetts, and implemented in new modems being prepared for the next deployments.

RONALD H. BROWN from Victoria to Seattle - The buoys, modems, and transmitters were modified for this operation, including locating the acoustic modem transducer in the buoy bridle at a 2 meter depth instead of the >100 meters previously attempted. Deployed one new system at Ocean Station PAPA and initial results indicate the software and hardware modification corrected previous problems and first 3 days transmitted data from the seafloor through the satellite that was complete and error-free. (An attempt to recover and redeploy another buoy was not possible due to high winds at the site.)

FOR THE NEXT ROUNDS OF DEPLOYMENTS: We are optimistic that the deep-water test planned will disclose information about the acoustic modems that will direct the project. However, we are developing a plan for redundancy - dual systems at each site. If the funding for 1999 comes through as planned, we will design tandem modems, transducers, and transmitters in the buoys, and consider the deployment of "pairs" of buoys at each site. The ease of deployments, the apparent robustness of the communications, and the proven reliability of the moorings show this is a reasonable plan.